

What is claimed is:

1. A mobile communication system for performing resource management including allocation of codes to form a high speed data transfer path for a mobile station, the mobile communication system comprising:

means which measures a state of use of the codes; and
means which performs the resource management on the basis of a result of the measurement.

2. A mobile communication system for performing a resource management including transmission power control to form a high speed data transfer path for a mobile station, the mobile communication system comprising:

means which measures a state of use of the transmission power; and

- 15 means which performs the resource management on the basis of a result of the measurement.

3. A mobile communication system for forming a high speed data transfer path for a mobile station and performing resource management on the high speed data transfer path, the mobile communication system comprising:

means which measures a time rate at which data is sent on the data transfer path; and

means which performs the resource management on the basis of a result of the measurement.

4. A mobile communication system for performing resource management including allocation of codes and transmission power control to form a high speed data transfer path for a mobile station, the mobile communication system comprising:

5 calculation means which calculates averages values with respect to the number of use of the codes and an amount of use of the transmission power on the basis of a data transfer time to the data transfer path; and

10 control means which performs the resource management on the basis of the average values.

5. The mobile communication system according to claim 4, wherein the data transfer time is a transmission time at the time when a data transfer amount, which is sent when an available transfer data amount to be found from the number of allocation 15 of codes, the transmission power, and channel quality information, becomes substantially the maximum, becomes substantially the same as the available transfer data amount.

6. The mobile communication system according to claim 4, wherein the data transfer time is a transmission time at the 20 time when the transmission power is in the vicinity of transmission power amount which is set for the data transfer path in advance.

7. The mobile communication system according to claim 4, wherein said calculation means calculates an average number 25 of use or an average rate of use of the codes.

8. The mobile communication system according to claim 4,
wherein said calculation means calculates a ratio of the
codes becoming equal to or higher than a threshold value set in
advance or a time in which the codes become equal to or higher
5 than the threshold value.

9. The mobile communication system according to claim 4,
wherein said calculation means calculates a ratio of the
number of codes at the time when whole allocated transmission
power is used becoming equal to or higher than a threshold value
10 set in advance or a time in which the number of codes becomes equal
to or higher than the threshold value.

10. The mobile communication system according to claim 4,
wherein said calculation means calculates an average use
amount or an average use rate of the transmission power.

- 15 11. The mobile communication system according to claim 4,
wherein said calculation means calculates a ratio of the
transmission power becoming equal to or higher than a threshold
value set in advance or a time in which the transmission power
becomes equal to or higher than the threshold value.

- 20 12. The mobile communication system according to claim 4,
wherein said calculation means calculates a ratio of
transmission power amount at the time when all allocated codes
are used becoming equal to or higher than a threshold value set

in advance or a time in which the transmission power amount becomes equal to or higher than the threshold value.

13. The mobile communication system according to claim 4,
wherein said calculation means calculates the data transfer
5 time or a ratio thereof in a measurement period set in advance.

14. The mobile communication system according to claim 4,
wherein said calculation means calculates a data transfer
time in which the codes or the transmission power becomes equal
to or higher than a threshold value set in advance in a measurement
10 period set in advance or a ratio thereof.

15. The mobile communication system according to claim 4,
wherein said calculation means integrates use rates of the
codes and the transmission power in a measurement period set in
advance to calculate a use time rate of resources.

15 16. A mobile communication system, comprising:
a base station;
a mobile station for which a shared channel shared with other
mobile stations is set in order to perform data transmission with
said base station; and
20 a radio network controller which notifies said base station
of at least the number of allocated codes which is a maximum value
of the number of codes of said shared channel,

wherein means, which measures an average number of use of the codes in a data transmission time on said shared channel, is included in said base station.

17. A mobile communication system, comprising:

5 a base station;

 a mobile station for which a shared channel shared with other mobile stations is set in order to perform data transmission with said base station; and

10 a radio network controller which notifies said base station of at least allocated power which is a maximum value of power of said shared channel,

 wherein means, which measures an average amount of use of the power in a data transmission time on said shared channel, is included in said base station.

15 18. A mobile communication system, comprising:

 a base station;

 a mobile station for which a shared channel shared with other mobile stations is set in order to perform data transmission with said base station; and

20 a radio network controller which notifies said base station of at least resource allocation information of said shared channel,

 wherein means, which measures a time rate at which data is sent on said shared channel, is included in said base station.

25 19. A mobile communication system, comprising:

a base station;

a mobile station for which a shared channel shared with other mobile stations is set in order to perform data transmission with said base station; and

5 a radio network controller which notifies said base station of the number of allocated codes which is a maximum value of the number of codes of said shared channel and allocated power which is a maximum value of power of said shared channel,

10 wherein means, which measures an average number of use of the codes in a data transmission time on said shared channel, means, which measures an average amount of use of the power in a data transmission time on said shared channel, and means, which measures a time rate at which data is sent on said shared channel, are included in said base station:

15 20. The mobile communication system according to claim 19,
 wherein the average number of use of the codes, the average value of use of the power, and the time rate at which data is sent are measured on the basis of a transmission time at the time when a data transfer amount, which is sent when an available transfer
20 data amount to be found from the number of allocation of codes, the transmission power, and channel quality information, becomes substantially the maximum, becomes substantially the same as the available transfer data amount.

25 21. The mobile communication system according to claim 19,
 wherein the average number of use of the codes, the average value of use of the power, and the time rate at which data is sent

are measured on the basis of a transmission time at the time when the transmission power is in the vicinity of transmission power amount which is set for the data transfer path in advance.

22. The mobile communication system according to claim 19,

5 wherein means, which informs said radio network controller of the average number of use of the codes and the average value of use of the power, is included in said base station, and
means, which updates the number of allocated codes and the allocated power on the basis of the informed average number of
10 use of the codes and average value of use of the power, is included
 in said radio network controller.

23. The mobile communication system according to claim 22,

 wherein means, which informs said radio network controller of the time rate at which data is sent, is included in said base
15 station, and

 means, which updates the number of allocated codes and the allocated power on the basis of the reported time rate at which data is sent, is included in said radio network controller.

24. The mobile communication system according to claim 19,

20 wherein means, which calculates the number of allocated codes and allocated power to be requested of said radio network controller according to the average number of use of the codes and the average value of use of the power, and means, which notifies said radio network controller of the number of allocated

codes and the allocated power to be requested, are included in said base station, and

means, which updates the number of allocated codes and the allocated power in response to the number of allocated codes and
5 the allocated power to be requested, is included in said radio network controller.

25. The mobile communication system according to claim 24,

wherein means, which calculates the number of allocated codes and allocated power to be requested of said radio network
10 controller according to the time rate at which data is sent, is included in said base station.

26. The mobile communication system according to claim 19,

wherein means, which updates the number of allocated codes and the allocated power on the basis of the average number of use
15 of the codes and the average value of use of the power, is included in said base station.

27. The mobile communication system according to claim 26,

wherein means, which updates the number of allocated codes and the allocated power on the basis of the time rate at which
20 data is sent, is included in said base station.

28. A mobile communication system using HSDPA (High Speed Downlink Packet Access), comprising:

measuring means which measures information on a state of use of channelization codes of a base station downlink, and

distributing means which distributes the number of channelization codes to be allocated to an HS-PDSCH (High Speed-Physical Downlink Shared Channel) and DPCHs (Dedicated Physical Channels) on the basis of a result of measurement of said
5 measuring means.

29. The mobile communication system according to claim 28,
further comprising:

means which measures information on a data transfer time of
said base station downlink,

10 wherein said distributing means distributes the number of
channelization codes on the basis of a result of the measurement.

30. A mobile communication system using HSDPA (High Speed
Downlink Packet Access), comprising:

15 measuring means which measures information on a state of use
of transmission power of a base station; and

distributing means which distributes power of each of an
HS-PDSCH (High Speed-Physical Downlink Shared Channel) and DPCHs
(Dedicated Physical Channels) to be notified to said base station
on the basis of a result of measurement of said measuring means.

20 31. The mobile communication system according to claim 30,
further comprising:

means which measures information on a data transfer time of
a base station downlink,

25 wherein said distributing means distributes the power on the
basis of a result of the measurement.

32. A base station which sets a shared channel shared with other mobile stations in order to perform data transmission with a mobile station at least on the basis of the number of allocated codes which is notified from a radio network controller and is
5 a maximum value of the number of codes of said shared channel, the base station comprising:

means which measures an average number of use of the codes in a data transmission time on said shared channel.

33. A base station which sets a shared channel shared with other
10 mobile stations in order to perform data transmission with a mobile station at least on the basis of allocated power which is notified from a radio network controller and is a maximum value of power of said shared channel, the base station comprising:

means which measures an average number of use of the power
15 in a data transmission time on said shared channel.

34. A base station which sets a shared channel shared with other mobile stations in order to perform data transmission with a mobile station at least on the basis of resource allocation information which is notified from a radio network controller,
20 the base station comprising:

means which measures a time rate at which data is sent on said shared channel.

35. A base station which sets a shared channel shared with other mobile stations in order to perform data transmission with a

mobile station on the basis of the number of allocated codes which
is notified from a radio network controller and is a maximum value
of the number of codes of said shared channel and allocated power
which is a maximum value of power of said shared channel, the base
5 station comprising:

means which measures an average number of use of the codes
in a data transmission time on said shared channel;

means which measures an average value of use of the power
in a data transmission time on said shared channel; and

10 means which measures a time rate at which data is sent on
said shared channel.

36. The base station according to claim 35,

wherein the average number of use of the codes, the average
value of use of the power, and the time rate at which data is sent
15 are measured on the basis of a transmission time at the time when
a data transfer amount, which is sent when an available transfer
data amount to be found from the number of allocation of codes,
the transmission power, and channel quality information, becomes
substantially the maximum, becomes substantially the same as the
20 available transfer data amount.

37. The base station according to claim 35,

wherein the average number of use of the codes, the average
value of use of the power, and the time rate at which data is sent
are measured on the basis of a transmission time at the time when
25 the transmission power is in the vicinity of transmission power
amount which is set for the data transfer path in advance.

38. The base station according to claim 35, further comprising
means which informs said radio network controller of the
average number of use of the codes and the average value of use
of the power to cause said radio network controller to update the
5 number of allocated codes and the allocated power.

39. The base station according to claim 38,
wherein means which informs said radio network controller
of the time rate at which data is sent and causes said radio network
controller to update the number of allocated codes and the
10 allocated power is included in said base station.

40. The base station according to claim 35, further comprising:
means which calculates the number of allocated codes and
allocated power to be requested of said radio network controller
according to the average number of use of the codes and the average
15 value of use of the power; and
means which notifies said radio network controller of the
number of allocated codes and the allocated power to be requested
and causes said radio network controller to update the number of
allocated codes and the allocated power.

20 41. The base station according to claim 40, further comprising:
means which calculates the number of allocated codes and
allocated power to be requested of said radio network controller
according to the time rate at which data is sent.

42. The base station according to claim 35, further comprising:
means which updates the number of allocated codes and the
allocated power on the basis of the average number of use of the
codes and the average value of use of the power.

5 43. The base station according to claim 42, further comprising:
means which updates the number of allocated codes and the
allocated power on the basis of the time rate at which data is
sent.

44. A radio network controller which, when a shared channel
10 shared with other mobile stations is set in order to perform data
transmission between a base station and a mobile station, notifies
said base station of at least the number of allocated codes which
is a maximum value of the number of codes of said shared channel,
the radio network controller comprising:

15 means which updates the number of allocated code on the basis
of the average number of use of the codes in a data transmission
time on said shared channel which is measured in said base station.

45. A radio network controller which, when a shared channel
shared with other mobile stations is set in order to perform data
20 transmission between a base station and a mobile station, notifies
said base station of at least allocated power which is a maximum
value of power of said shared channel, the radio network
controller comprising:

means which updates the allocated power on the basis of the average value of use of the power in a data transmission time on said shared channel which is measured in said base station.

46. A radio network controller which, when a shared channel
5 shared with other mobile stations is set in order to perform data transmission between a base station and a mobile station, notifies said base station of at least resource allocation information of said shared channel, the radio network controller comprising:

means which updates the resource allocation information on
10 the basis of a time rate at which data is sent on said shared channel which is measured in said base station.

47. A radio network controller which, when a shared channel shared with other mobile stations is set in order to perform data transmission between a base station and a mobile station, notifies
15 said base station of the number of allocated codes which is a maximum value of the number of codes of said shared channel and allocated power which is a maximum value of power of said shared channel, the radio network controller comprising:

means which updates the number of allocated codes and the
20 allocated power on the basis of the average number of use of the codes in a data transmission time on said shared channel which is measured in said base station, an average value of use of the power in a data transmission time on said shared channel, and a time rate at which data is sent on said shared channel.

25 48. The radio network controller according to claim 47,

wherein the average number of use of the codes, the average value of use of the power, and the time rate at which data is sent are measured on the basis of a transmission time at the time when a data transfer amount, which is sent when an available transfer 5 data amount to be found from the number of allocation of codes, the transmission power, and channel quality information, becomes substantially the maximum, becomes substantially the same as the available transfer data amount.

49. The radio network controller according to claim 47,
10 wherein the average number of use of the codes, the average value of use of the power, and the time rate at which data is sent are measured on the basis of a transmission time at the time when the transmission power is in the vicinity of transmission power amount which is set for the data transfer path in advance.

15 50. The radio network controller according to claim 47, further comprising:

means which updates the number of allocated codes and the allocated power in response to the number of allocated codes and allocated power which are notified from said base station and 20 requested according to the average number of use of the codes and the average value of use of the power.

51. The radio network controller according to claim 50, further comprising:

means which updates the number of allocated codes and the 25 allocated power in response to the number of allocated codes and

allocated power which are notified from said base station and requested according to the time rate at which data is sent.

52. A resource allocation control method for a mobile communication system which performs resource management including allocation of codes to form a high speed data transfer path for a mobile station, the resource allocation control method comprising, on a management side performing the resource management:

10 processing for measuring a state of use of the codes; and processing for performing the resource management on the basis of a result of the measurement.

53. A resource allocation control method for a mobile communication system which performs resource management including transmission power control to form a high speed data transfer path for a mobile station, the resource allocation control method comprising, on a management side performing the resource management:

15 processing for measuring a state of use of the transmission power; and
20 processing for performing the resource management on the basis of a result of the measurement.

54. A resource allocation control method for a mobile communication system which forms a high speed data transfer path for a mobile station and performs resource management in the high speed data transfer path, the resource allocation control method

comprising, on a management side performing the resource management:

processing for measuring a time rate at which data is sent on the data transfer path; and

5 processing for performing the resource management on the basis of a result of the measurement.

55. A resource allocation control method for a mobile communication system which performs resource management including allocation of codes and transmission power control to 10 form a high speed data transfer path for a mobile station, the resource allocation control method comprising, on a management side performing the resource management:

processing for calculating averages values with respect to the number of use of the codes and an amount of use of the 15 transmission power on the basis of a data transfer time to the data transfer path; and

processing for performing the resource management on the basis of the average values.

56. The resource allocation control method according to claim 20 55,

wherein the data transfer time is a transmission time at the time when a data transfer amount, which is sent when an available transfer data amount to be found from the number of allocation of codes, the transmission power, and channel quality information, 25 becomes substantially the maximum, becomes substantially the same as the available transfer data amount.

57. The resource allocation control method according to claim
55,

wherein the data transfer time is a transmission time at the
time when the transmission power is in the vicinity of

5 transmission power amount which is set for the data transfer path
in advance.

58. The resource allocation control method according to claim
55,

wherein said processing for calculating average values
10 calculates an average number of use or an average rate of use of
the codes.

59. The resource allocation control method according to claim
55,

wherein said processing for calculating average values
15 calculates a ratio of the codes becoming equal to or higher than
a threshold value set in advance or a time in which the codes become
equal to or higher than the threshold value.

60. The resource allocation control method according to claim
55,

20 wherein said processing for calculating average values
calculates a ratio of the number of codes at the time when whole
allocated transmission power is used becoming equal to or higher
than a threshold value set in advance or a time in which the number
of codes becomes equal to or higher than the threshold value.

61. The resource allocation control method according to claim
55,

wherein said processing for calculating average values
calculates an average use amount or an average use rate of the
5 transmission power.

62. The resource allocation control method according to claim
55,

wherein said processing for calculating average values
calculates a ratio of the transmission power becoming equal to
10 or higher than a threshold value set in advance or a time in which
the transmission power becomes equal to or higher than the
threshold value.

63. The resource allocation control method according to claim
55,

15 wherein said processing for calculating average values
calculates a ratio of transmission power amount at the time when
all allocated codes are used becoming equal to or higher than a
threshold value set in advance or a time in which the transmission
power amount becomes equal to or higher than the threshold value.

20 64. The resource allocation control method according to claim
55,

wherein said processing for calculating average values
calculates the data transfer time or a ratio thereof in a
measurement period set in advance.

65. The resource allocation control method according to claim
55,

wherein said processing for calculating average values
calculates a data transfer time in which the codes or the
5 transmission power becomes equal to or higher than a threshold
value set in advance in a measurement period set in advance or
a ratio thereof.

66. The resource allocation control method according to claim
55,

10 wherein said processing for calculating average values
integrates use rates of the codes and the transmission power in
a measurement period set in advance to calculate a use time rate
of resources.

67. A resource allocation control method for a mobile
15 communication system using HSDPA (High Speed Downlink Packet
Access), comprising the steps of:

measuring information on a state of use of channelization
codes of a base station downlink, and

20 distributing the number of channelization codes to be
allocated to an HS-PDSCH (High Speed-Physical Downlink Shared
Channel) and DPCHs (Dedicated Physical Channels) on the basis of
a result of the measurement.

68. The resource allocation control method according to claim
67, further comprising the step of:

measuring information on a data transfer time of said base station downlink,

wherein the number of channelization codes is distributed on the basis of a result of the measurement.

5 69. A resource allocation control method for a mobile communication system using HSDPA (High Speed Downlink Packet Access), comprising the steps of:

measuring information on a state of use of transmission power of a base station; and

10 distributing power of each of an HS-PDSCH (High Speed-Physical Downlink Shared Channel) and DPCHs (Dedicated Physical Channels) to be notified to said base station on the basis of a result of the measurement.

70. The mobile communication method according to claim 69,
15 further comprising:

a step for measuring information on a data transfer time of a base station downlink,

wherein said method distributes the power on the basis of a result of the measurement.

20 71. A resource allocation control method for a mobile communication system which comprises: a base station; a mobile station for which a shared channel shared with other mobile stations is set in order to perform data transmission with the base station; and a radio network controller which notifies the
25 base station of at least the number of allocated codes which is

a maximum value of the number of codes of said shared channel, the resource allocation control methods comprising, on said base station side, the step of:

measuring an average number of use of the codes in a data
5 transmission time on said shared channel.

72. A resource allocation control method for a mobile communication system which comprises: a base station; a mobile station for which a shared channel shared with other mobile stations is set in order to perform data transmission with the
10 base station; and a radio network controller which notifies the base station of at least allocated power which is a maximum value of power of said shared channel, the resource allocation control methods comprising, on said base station side, the step of:

measuring an average value of use of the power in a data
15 transmission time on said shared channel.

73. A resource allocation control method for a mobile communication system which comprises: a base station; a mobile station for which a shared channel shared with other mobile stations is set in order to perform data transmission with the
20 base station; and a radio network controller which notifies the base station of at least resource allocation information of said shared channel, the resource allocation control method comprising, on said base station side, the step of:

measuring a time rate at which data is sent on said shared
25 channel.

74. A resource allocation control method for a mobile communication system which comprises: a base station; a mobile station for which a shared channel shared with other mobile stations is set in order to perform data transmission with the
5 base station; and a radio network controller which notifies the base station of the number of allocated codes which is a maximum value of the number of codes of said shared channel and allocated power which is a maximum value of power of said shared channel, the resource allocation control method comprising: on said base
10 station side, steps of:

measuring an average number of use of the codes in a data transmission time on said shared channel; measuring an average amount of use of the power in a data transmission time on said shared channel; and

15 measuring a time rate at which data is sent on said shared channel.

75. The resource allocation control method according to claim
74,

wherein the average number of use of the codes, the average
20 value of use of the power, and the time rate at which data is sent are measured on the basis of a transmission time at the time when a data transfer amount, which is sent when an available transfer data amount to be found from the number of allocation of codes, the transmission power, and channel quality information, becomes
25 substantially the maximum, becomes substantially the same as the available transfer data amount.

76. The resource allocation control method according to claim
74,

wherein the average number of use of the codes, the average
value of use of the power, and the time rate at which data is sent
5 are measured on the basis of a transmission time at the time when
the transmission power is in the vicinity of transmission power
amount which is set for the data transfer path in advance.

77. The resource allocation control method according to claim
74, further comprising, on said base station side, the step of:

10 informing said radio network controller of the average
number of use of the codes and the average value of use of the
power,

wherein said radio network controller updates the number of
allocated codes and the allocated power on the basis of the
15 informed average number of use of the codes and average value of
use of the power.

78. The resource allocation control method according to claim
77, further comprising, in said base station, the step of:

informing said radio network controller of the time rate at
20 which data is sent,

wherein said radio network controller updates the number of
allocated codes and the allocated power on the basis of the
informed time rate at which data is sent.

79. The resource allocation control method according to claim
25 74, further comprising, on said base station side, the steps of:

calculating the number of allocated codes and allocated power to be requested of said radio network controller according to the average number of use of the codes and the average value of use of the power; and

5 informing said radio network controller of the number of allocated codes and the allocated power to be requested,

 wherein said radio network controller updates the number of allocated codes and the allocated power in response to the number of allocated codes and the allocated power to be requested.

10 80. The resource allocation control method according to claim 79, further comprising, on said base station, the step of:

 calculating the number of allocated codes and allocated power to be requested of said radio network controller according to the time rate at which data is sent.

15 81. The resource allocation control method according to claim 74, further comprising, on said base station side, the step of:

 updating the number of allocated codes and the allocated power on the basis of the average number of use of the codes and the average value of use of the power.

20 82. The resource allocation control method according to claim 81, further comprising, in said base station, the step of:

 updating the number of allocated codes and the allocated power on the basis of the time rate at which data is sent.